

REMARKS

No amendments are presented herein. Claims 1-5, 7 and 8 are currently pending.

Claims 1, 2, 4, 5, 7 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Benda (U.S. Patent No. 5,427,773) in view of Herfurth (DE 195 33 960). Claim 3 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Benda in view of Herfurth, and further in view of Prinz (U.S. Patent No. 5,207,371). Applicant respectfully asks the Examiner to reconsider these rejections in view of the following Remarks.

The present invention, as claimed, is directed to a method for the production of a work piece, such as a form tool, with exact geometry and high surface quality. The work piece is constructed using a process wherein powder coatings are applied one on top of each other, by means of compaction. After the powder has been compacted, the surfaces thereof are finely machined in a mechanical manner. More specifically, all claims require that each layer be mechanically finished while the layer is still surrounded with powdered starting material. Applicant respectfully submits that at least this highlighted element is not disclosed, taught or suggested by the cited prior art in any way.

The Examiner states that it would be inherent for the work piece of Benda to be surrounded during production. However, Applicant respectfully notes that all pending claims require that the layers be surrounded with powdered starting material as they are mechanically finished. Clearly, such can not be disclosed by Benda, since Benda is silent as to mechanical finishing.

The Examiner also states: "In the combination, there is no teaching from the art that one should remove the powder between layers, and it would have been obvious to keep the powder in place to avoid the time wasted in removal of the powder." Applicant points out that the very premise of this statement, i.e., that there is no teaching in the prior art combination that one should remove the powder between layers, is clearly erroneous. Herfurth clearly and repeatedly teaches in column 10, lines 20-25 and 53-65 that powder that was not used should, in fact, be removed between layers. According to these paragraphs, the technical teaching is very clear and concise that the workpiece will be free of any powder prior to the mechanical finishing process being initiated. For example, following is a translation of col. 10, lines 20 to 25:

Around the working area, i.e. the area around which the workpiece is being built layer-by-layer, where the melted powder and the layers will be mechanically finished, a sucking device 26 is provided to suck away the surplus powder or the residue created during the melting process step.

Thus, Herfurth does, in fact, teach that each layer not be mechanically finished while the layer is still surrounded with powdered starting material, in direct contradiction to the above-discussed element required by all claims.

Similarly, Prinz also clearly does not disclose, teach or suggest this limitation, since it is clearly described in the text, and shown in the Figures, of Prinz that there is no powdered starting material surrounding any layer as it is being mechanically finished.

Thus, Applicant respectfully submits that it would not have been obvious to have modified the Benda and Herfurth combination, or even the Benda, Herfurth

and Prinz combination, to arrive at this above-discussed aspect of the claimed invention. It is well settled that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination or modification. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). Here, there is absolutely no suggestion in either of the Benda or Prinz references to perform mechanical finishing on a layer while that layer is surrounded with powdered starting material, and the Herfurth reference expressly teaches away from this concept by teaching that the workpiece should be free of any powder prior to the mechanical finishing process being initiated.

Moreover, Applicant respectfully submits that such a modification is contrary to the conventional wisdom of those skilled in the art. It is generally understood that it is undesirable to mechanically finish a compacted layer while the layer is still surrounded with powdered starting material, since the traditional tools for mechanical finishing generally cause substantial disturbances in the powdered starting material, which makes it more difficult to form subsequent layers. However, Applicant has invented a mechanical finishing tool having a configuration which allows it to produce acceptable results, while at the same time being very small in diameter (typically having a diameter of about 0.5 mm). Using such a tool, Applicant has, contrary to conventional wisdom, discovered that mechanical finishing can be performed by dipping the tool into the powdered starting material surrounding the work piece without any disturbances in the powdered starting material. As such, the present invention can provide a finishing process more efficient and productive than the prior art method for finishing the multiple layers of the work piece. Applicant has also surprisingly discovered that the inventive method is capable of producing a better finish than previously known

methods, because the abrasiveness of the powdered starting material surrounding the layers during mechanical finishing actually may enhance such finishing.

While Applicant recognizes that the tool developed by Applicant is not claimed in the present application, it is discussed herein merely to explain to the Examiner how it was able to overcome the conventional wisdom in the prior art that it is undesirable to mechanically finish a compacted layer while the layer is still surrounded with powdered starting material.

To summarize, concerning the requirement of all claims that a layer be mechanically finished while the layer is still surrounded with powdered starting material, one skilled in the art is faced with the following:

- a) Benda, which is completely silent as to mechanical finishing in general, and consequently completely silent as to whether a layer should be surrounded with powdered starting material during mechanical finishing;
- b) Prinz, which clearly describes in the text, and shown in the Figures, that there is no powdered starting material surrounding any layer as it is being mechanically finished;
- c) Herfurth, which clearly and repeatedly teaches that each layer should not be mechanically finished while the layer is still surrounded with powdered starting material; and
- d) the conventional wisdom in the art (which is not aware of the tool recently developed by Applicant and described in the present application), which

recognizes that that it is undesirable to mechanically finish a compacted layer while the layer is still surrounded with powdered starting material.

It is difficult to comprehend how one skilled in the art faced with these prior art teachings would somehow arrive at the claimed invention without the present application being used as a roadmap, since it is only the present application which would provide the suggestion that a layer should be mechanically finished while the layer is still surrounded with powdered starting material.

For the foregoing reasons, Applicant respectfully submits that all pending claims, namely Claims 1-5, 7 and 8, are patentable over the references of record, and earnestly solicits allowance of the same.

Respectfully submitted,



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